

Logistics Factors Influencing Logistics Performance of Delivery Logistics Service Providers in Muang District Nakhonratchasima Province

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ABSTRACT

The research aimed to achieve two objectives: 1) to examine the various logistics factors and their impact on logistics efficiency; and 2) to investigate the specific logistics factors that influence the logistics efficiency of delivery logistics providers. Muang District is located in Nakhon Ratchasima Province. The tool employed for the purpose of querying A total of 385 samples were obtained using the basic sampling approach. Conduct data analysis via pre-existing software applications. The statistical measures employed in this study encompass percentage, mean, standard deviation, and multiple regression analysis. The findings of the study indicate that the logistics factors and logistics efficiency exhibited by logistics delivery service providers are of high magnitude. Logistics considerations have a crucial role in determining the level of logistics efficiency. Communication, logistics, and order management comprise 76.6% of the issues identified. The three key areas of focus in this study are logistics,

client demand planning and forecasting, and procurement. In order to effectively operate in the logistics delivery industry, service providers are required to possess cellphones that are equipped with a consistently responsive and efficient interface. The primary focus should be on expediting the delivery of urgent orders to meet customer demands by ensuring timely and complete fulfillment of products. In order to avoid incorrect product deliveries, it is imperative that the items undergo thorough inspection at the store to ensure their pristine condition. This practice is essential as it not only helps minimize operational costs but also enables the provision of distinct services compared to competitors.

Keywords : logistics management, logistics efficiency, logistics delivery , logistics delivery service provider

INTRODUCTION

Currently, various economies are confronted with significant economic challenges stemming from the process of globalization and the shifting patterns of consumer behavior attributed to advancements in digital technology. Hence, the administration of economic sectors in diverse nations. The phenomenon under consideration exhibits a growing level of intricacy, which in turn yields significant ramifications across a wide range of domains. The Logistics Development Action Plan of Thailand This proposal advocates for the widespread adoption of contemporary technology in logistics operations, with the aim of directing the development trajectory towards the comprehensive integration of technology and innovation across diverse sectors. The primary objective is to enhance the efficiency of logistics management and services throughout the entire supply chain, thereby facilitating the growth of the industry.

The enhancement of logistics service providers to attain comparable potential as overseas enterprises. The individual possesses the necessary qualifications to adhere to internationally recognized service standards. Advocate for the integration of technology and innovation in organizational management. According to the Office of the National Economic and Social Development Council (2023), the enhancement of logistics management plays a crucial role in bolstering corporate competitiveness. Additionally, the acquisition of information is essential for fostering technology and innovation development, which in turn facilitates self-reliance in the future.

Logistics is an integral component of the supply chain management process, facilitating strategic planning, operational assistance, and meticulous supervision of economic activity to ensure optimal efficiency and effectiveness. In addition to ensuring the provision of products across the entire client journey to fulfill their requirements, Hence, the implementation of proficient and impactful logistics management strategies is crucial to driving the organization towards enduring and sustainable expansion. The ability to adjust and accommodate changes in accordance with significant economic operations in order to facilitate the marketing and distribution of goods and services Enhance efficiency and convenience for customers through the use of information technology and communication systems, thereby maximizing the utility of time and location. The objective is to enhance operational efficiency by minimizing the duration of processes involved in consumer and distributor transactions, such as ordering, delivery, and payment of goods and services. This optimization aims to bolster corporate competitiveness and foster sustained collaboration, ultimately leading to optimal customer satisfaction. According to the Department of Primary Industries and Mines (2015),

The development of the capacity to examine and assess logistics efficiency and potential is considered a crucial and indispensable aspect. This will enable entrepreneurs to gain insights into the strengths and weaknesses of their operations, utilizing the acquired information as a framework for enhancing efficiency and competitiveness. According to Stock and Lambert (2001), the success of a firm is contingent upon the evaluation of the requirements of the target market and the proficient and effective delivery of those satisfactions, surpassing that of its competitors. This approach has been implemented in numerous organizations to facilitate the provision of exceptional customer service. The primary emphasis of this concept lies in prioritizing customers as the driving force behind the expansion and diversification of operations pertaining to logistics management. This perspective stems from the belief that the purpose of a business is to fulfill the requirements and demands of its customers. Hence, micro logistics costs pertain exclusively to actions taking place within the confines of an enterprise or company.

According to a study conducted by Research in 2023, there has been a deceleration in the trajectory of food supply subsequent to the outbreak of the COVID-19 pandemic. Consequently, owners of meal delivery platforms persist in augmenting their marketing efforts in order to entice users to utilize their services. The food delivery market is currently through a phase of adaptation following the rapid expansion it experienced during the COVID-19 epidemic. Furthermore, it is important to note that the economy has not yet achieved complete restoration, and income levels have yet to reach pre-crisis levels. Consequently, consumers exhibit a sense of caution when it comes to their expenditure. It is anticipated that in 2023, there would be a continued decrease in the food delivery business indicators associated with accommodation compared to the preceding year. The projected market valuation for food delivery

services to accommodation is estimated to be approximately 86 billion baht, indicating a marginal decline of 0.6% compared to the previous year. Concurrently, the anticipated volume of food delivery orders to accommodation is likely to see a notable contraction of 11.3% relative to the corresponding period in 2022.

It is anticipated that the proliferation of meal delivery service providers will persist and extend its reach to prominent urban centers inside Thailand. In addition, we diligently strive to develop and maintain trust in order to foster client loyalty and ensure continued patronage of our service. In order to generate cash for their enterprises, service providers must endeavor to develop their network and cultivate a substantial user base. The presence of a substantial number of drivers is known to exert a notable influence on the selection of various services. Furthermore, in instances where clients experience prolonged waiting periods, it becomes challenging to entice them to avail themselves of the service once more. Hence, the presence of an effective and distinct service further enhances the likelihood of consistent utilization in the midst of intense rivalry among service providers. The emergence of shifting customer behavior presents a multitude of challenges. The increasing expenses faced by logistics delivery providers are compelling them to expedite the process of company rebalancing and strengthen their capacity to adapt their strategies in order to create profits.

Based on the aforementioned information, our research endeavors are focused on examining the logistical variables that impact the operational effectiveness of delivery service providers. Muang District is located in Nakhon Ratchasima Province. The findings of this study can serve as a valuable framework for enhancing logistical service skills in the face of intense competition, particularly in terms of cost, time, and credibility, with the aim of

attracting and retaining loyal clients. Distinguish oneself from competition and cultivate long-term profitability.

RESEARCH OBJECTIVES

1. The objective of this study is to examine the logistics factors and logistics effectiveness of logistics delivery service providers operating in Muang District, Nakhon Ratchasima Province.

2. The objective of this study is to examine the various logistics elements that influence the effectiveness of delivery logistics providers. Muang District, located in Nakhon Ratchasima Province.

RESEARCH HYPOTHESES

Logistics factors affect the logistics efficiency of delivery logistics providers. In Muang District, Nakhon Ratchasima Province

CONCEPTUAL FRAMEWORK FOR RESEARCH

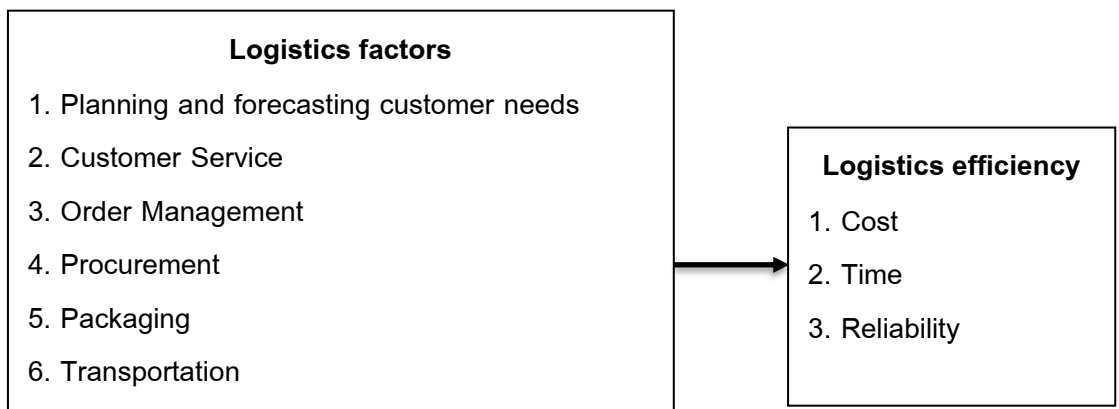


Figure 1: Conceptual framework for research

HOW TO CONDUCT RESEARCH

The study population consisted of logistics delivery service providers, specifically Grap Food, Food Panda, and Line Man, located in Muang District, Nakhon Ratchasima Province. The sample size was established using Cochran's (1963) formula at a 95% confidence level. The multi-stage sampling technique involves the division of the population into 19 sub-districts, with each sub-district being subjected to a basic sample process. The samples were dispersed throughout multiple locations, including retail establishments. Shopping centers and residential areas, among other examples.

The instrument employed for the collection of research data is the questionnaire, comprising three distinct sections, delineated as follows:

Part 1: Survey on Demographic Characteristics of Participants, encompassing gender, age group, marital status, and educational attainment. The variables of interest in this study include monthly income, affiliation, employment experience, and number of family members.

Part 2 of the assessment requests individuals to provide their comments on six distinct logistics factors. The inquiry pertains to a Rating Scale with a closed-ended structure, consisting of five distinct levels.

Part 3 of the study examines three dimensions of logistical efficiency. The inquiry pertains to a closed-ended Rating Scale consisting of five levels.

After creating the questionnaire, the researcher tested the quality of the divided tool. 2 parts, as follows:

1. Content Compliance Check In this research, the IOC value was between 0.67 and 1.00, and the total IOC value was 0.923.

2. Precision monitoring the query that passed the tool straightness check was applied to a group of 30 people who were like the sample, obtaining the alpha coefficient of Kronbach. Logistics factors It has a confidence value of 0.944

and logistics efficiency. A confidence value of 0.925 indicates high accuracy in the query.

Data analysis We divided the analysis of the data into two parts as follows:

1. Descriptive statistics for personal factors Analyze data using frequency and percentage distributions for logistics factors and the logistics efficiency of delivery logistics providers. Analyze data using arithmetic mean and standard deviation.

2. Inferential statistics Use multiple regression analysis to test the influence of logistics factors on the logistics efficiency of delivery logistics providers. In Muang District, Nakhon Ratchasima Province

FINDINGS

Part 1: Research results according to objective No. 1 to study logistics factors and logistics efficiency of logistics delivery service providers in Muang District, Nakhon Ratchasima Province Data analysis results on logistics factors and logistics efficiency of service providers in logistics delivery In Muang District, Nakhon Ratchasima Province, as shown in Tables 1 and 2.

Table 1 shows the mean and Standard deviation of logistics factors.

Logistics factors	\bar{x}	S.D.	Level
1. Customer demand planning and forecasting	4.27	.481	high
2. Customer Service	4.34	.460	high
3. Order Management	4.37	.429	high
4. Procurement	4.34	.467	high
5. Packaging	4.30	.590	high
6. Transportation	4.22	.537	high
total	4.31	0.494	high

Table 1 shows the logistics factors of logistics delivery service providers. The average was 4.31, the standard deviation was 0.494, and on a case-by-case basis, logistics communication and order management factors were found. It has the largest average of 4.37 and a standard deviation of .429, followed by customer service and support activities. Average = 4.34, Standard Deviation = .460 Procurement Average = 4.34 Standard deviation = .590 Appliance handling and packaging Average = 4.30 standard deviation Customer demand planning and forecasting, average = 4.27, standard deviation = .481, and logistics It has the smallest mean of 4.22 and the standard deviation of .537, respectively.

Table 2 shows the mean and Standard deviation of logistics performance of logistics providers. Delivery.

Logistics efficiency	\bar{x}	S.D.	Level
1. Cost	4.25	.517	high
2. Time	4.39	.553	high
3. Reliability	4.36	.569	high
total	4.33	0.546	high

According to Table 2, it can be observed that: The optimization of logistics operations enhances the efficiency of delivery processes. A logistics service provider is an entity that offers a range of services related to the management and coordination of the flow of goods, information, and resources throughout a supply chain. The mean value of the dataset is 4.33, while the standard deviation is 0.546. Among the several aspects of logistics, delivery efficiency is considered the most important in terms of time management. The mean value is 4.39, accompanied by a standard deviation of 0.553, followed by an assessment of reliability performance. The given data exhibits an average value of 4.36, a standard deviation of 0.596, and demonstrates cost efficiency. The data set exhibits a mean value of 4.25 and a standard deviation of 0.517.

Section 2: Research Findings Based on Objective 2 - Investigation of Logistics Factors Influencing the Efficiency of Logistics Delivery Service Providers in Muang District, Nakhon Ratchasima Province, as Illustrated in Table 3.

Table 3 Regression analysis to test logistics factors affecting logistics efficiency of delivery logistics providers. In Muang District, Nakhon Ratchasima Province

Independent Variable	b	SE _b	β	t	p-value
(Constant)	1.113	.194		5.738	.000
1. Logistics Communications and order Management	.492	.051	.489	9.628	.000
2. Transportation	.254	.036	.317	7.050	.000
3. Customer demand planning and forecasting	-.100	.040	-.112	-2.491	.013
4. Procurement	.090	.046	.098	1.970	.050

R = 0.671, R² = 0.766, SE_{est} = 0.31489, F = 3.879, Sig. of F = 0.050

Table 3 presents the findings of the study, indicating that the analysis of data and regression equations, represented as standard scores, reveal the presence of four independent factors that have a substantial impact on the efficiency of logistics in delivery service providers. In a declining manner, 1) The coordination of communication and management of orders within the field of logistics. Two key areas of focus in supply chain management are customer demand planning and forecasting, as well as procurement. The Adjusted R Square coefficient of 76.6 percent is used to illustrate the impact of logistics factors on efficiency in the procurement process. The operational aspects of delivery logistics service providers. In the Muang District of Nakhon Ratchasima Province, 76.6 percent of the factors may be attributed to the aforementioned variables, while the remaining 23.4 percent can be attributed to other causes. The equation representing the forecast can be expressed in the following manner: The equation can be written as $y = 1.113 + 0.492$. The topics covered in this discussion include

logistics communication and order management, transportation and distribution, customer demand planning and forecasting, and procurement.

The coefficient (b) of 0.492 for logistics communication and order management factors indicates that a one-unit rise in these factors, holding all other variables constant, is associated with a one-unit increase in the value of the logistics communication and order management factors. An increase of 492 units in logistics efficiency is anticipated for logistics delivery service providers.

The b value of the transport factor =.254 means that if the transport factor increases by 1 unit while the other factors are constant, It can be expected that the logistics efficiency of logistics delivery service providers will increase by 254 units.

The b value of customer demand planning and forecasting factors is -.100. increase by 1 unit, while other factors remained constant. It can be expected that the logistics efficiency of logistics delivery service providers will increase -.100 HP

The b value of the procurement factor =.090 means that if the procurement factor increases by 1 unit while the other factors are constant, it can be expected that the logistics efficiency of logistics delivery service providers will increase by.090 units.

CONCLUSIONS

The research's conclusion, in accordance with objective 1, indicates that logistics service providers should proactively address scenarios involving unclear client needs by leveraging past data to strategize and predict consumer requirements. It is imperative to adhere strictly to the terms that have been mutually agreed upon with both the Company and its clients. It is imperative to regularly assess the state of the motorbike to ascertain its operational readiness,

The research's conclusion, in accordance with objective 1, indicates that logistics service providers should proactively address scenarios involving unclear client needs by leveraging past data to strategize and predict consumer requirements. It is imperative to adhere strictly to the terms that have been mutually agreed upon with both the Company and its clients. It is imperative to regularly assess the state of the motorbike to ascertain its operational readiness, hence ensuring prompt delivery of goods. Delivering products or services promptly and in the quantity specified by clients. There exist cellphones that are equipped with an internet system characterized by their high speed and constant availability, designed to prioritize the prompt reception of consumer requests. The delivery time for the items from the store is expeditious. The primary objective is to prioritize the establishment and cultivation of positive connections with merchants who offer various services. It is vital to thoroughly examine the merchandise in an optimal state prior to its distribution to clientele. Various types of equipment are available to mitigate the potential damage incurred during the transportation of goods. Additionally, these tools can be utilized to examine and evaluate the extent of damage resulting from the delivery of goods to customers, hence facilitating opportunities for improvement in the whole process. Design and optimize the logistics of shipments to minimize costs. Operate a motorbike with a focus on optimizing fuel efficiency. Operate a motorbike with a focus on optimizing fuel efficiency. It is imperative to use caution while operating a vehicle in order to prevent any potential harm or impairment to the transported cargo. The capacity to promptly modify shipment arrangements in response to heightened client urgency. It is advisable to optimize the utilization of available

resources and actively seek opportunities to minimize operational expenses while effectively managing money for optimal returns.

At the conclusion of goal 2, the analysis of data and regression equations, expressed as standard scores, revealed the presence of four independent variables that significantly influence the performance of delivery logistics providers. The following list is arranged in descending order: 1) Logistics communication and order management; 2) Logistics; 3) Customer demand planning and forecasting; and 4) Procurement. In the Muang District of Nakhon Ratchasima Province, 76.6 percent of the factors may be attributed to the aforementioned variables, while the remaining 33.4 percent can be attributed to other causes. The equation representing the forecast can be expressed in the following manner: The equation can be expressed as follows: $y = 1.113 + 0.492$ for logistics communication and order management, $+ 0.254$ for transportation and distribution, $+ 0.100$ for customer demand planning and forecasting, and $+ 0.090$ for procurement.

DISCUSS THE FINDINGS

A study conducted on the logistics delivery service providers in Muang District, Nakhon Ratchasima Province, examined the logistics elements that impact their logistics effectiveness. The findings revealed that the most influential aspects, in decreasing order, were logistics communication and order management. In order to effectively operate in the logistics delivery industry, service providers are required to possess cellphones that are equipped with high-speed interfaces and advanced features at all times. With a focus on the expeditiousness of online consumer purchase fulfilment. In addition, it is imperative for them to possess the capability to effectively manage and address

clients' time-sensitive orders in accordance with their requirements. In order to ensure efficient operations and minimize costs, it is imperative to deliver products promptly and in their entirety, according to the specified quantity requested by the customer. Additionally, it is crucial to thoroughly inspect the products at the shop to guarantee their pristine condition and alignment with the customer's order, hence preventing any erroneous deliveries. According to the research conducted by Wanida Pajongrong et al. (2021), a crucial aspect of efficient logistics management in the context of expedited parcel services is the prompt processing of cargo. The efficient and cost-effective delivery of items to the intended receiver while assuring accurate location placement. Furthermore, it is imperative to strategically plan and accurately estimate client wants. It is imperative to establish a comprehensive strategy to effectively manage circumstances in which the requirements of customers are ambiguous or uncertain. Historical data is utilized for the purpose of strategizing and predicting consumer demands, hence enabling the generation of revenue through daily shipments. Develop and analyze strategies for identifying and evaluating the transportation routes that offer the most cost-efficiency. The primary emphasis should be placed on cultivating strong connections with service-providing merchants. The prompt delivery of merchandise from retailers aligns with the findings of Kittinat Nunthong et al. (2021). The variables that contribute to service fees encompass the quality of technology, the quality of employees, the correctness of the service, the availability of the service, the suitability of the service in terms of time, and the state of the product. The concept of data quality refers to the degree to which data is accurate, reliable, and fit for its intended purpose. It encompasses Jiraporn is also in alignment with error handling, the ordering process, and relationships. According to the study conducted by Chananchana (2021), it was shown that value perspective elements have

a greater impact on satisfaction with delivery services compared to other factors. In order to enhance customer satisfaction, a delivery enterprise should prioritize the establishment of value for its services, thereby elucidating the reasons why customers should select our firm over rival companies. This is because clients assess the merits of products and services by considering the tangible outcomes they receive.

An Analysis of the Performance of Logistics Delivery Providers in the Field of Logistics The significance of responsiveness has been identified among logistics delivery service providers. Credibility is established by placing significance on one's attire in accordance with the company's prescribed dress code, ensuring appropriateness and tidiness. The objective is to ensure the delivery of goods to clients in optimal condition by employing effective packaging techniques and exercising vigilance during transportation to prevent any damage. Additionally, it is important to maximize the utilization of available resources and explore opportunities to minimize operational expenses. In order to optimize effectiveness and achieve optimal outcomes, it is imperative to assume responsibility for the management of personal finances, aligning with Thailand's Logistics System Development Action Plan 2023–2027 pertaining to the development of logistics personnel. The training programmer has undergone revisions to align with the contemporary logistics business, which emphasizes the utilization of technology and the enhancement of workforce competencies to facilitate entry into the global market and cater to the demands of entrepreneurial stakeholders. This entails the creation, storage, and integration of personalized asset management indicators in accordance with evolving circumstances, as well as the ongoing monitoring, evaluation, and enhancement of performance.

SUGGESTION

Recommendations based on research findings

The enhancement of logistics capabilities among logistics delivery service providers the process involves predicting customer requirements prior to commencing work, assessing performance, and rectifying software defects. Ensure timely delivery of products as per customer specifications. It is vital to possess a precise comprehension of service patterns. The acquisition of problem-solving skills pertaining to potential emergency situations. The objective of this task is to establish the specific criteria that will be used to evaluate and select the stores that are capable of providing goods services. Contracts and agreements are established with merchants to facilitate the provision of transportation services. It is imperative to prioritize the prevention of product damage prior to the delivery process to clients. It is imperative to establish a contingency plan to address potential transportation-related damages and ensure timely delivery of products to customers. A contingency plan has been devised to address situations where customers fail to collect the product within the designated timeframe or decline to accept the product. Participate in training sessions aimed at enhancing one's understanding of safe driving practices and strategies for optimizing fuel efficiency. and be prepared to respond promptly. The company possesses the capability to promptly fulfil customer orders by ensuring timely delivery of the complete quantity of products as per the specifications provided by the customers. Strategies are being devised to address the escalating competition among meal delivery services, which has the potential to result in diminished revenues. Additionally, measures are being considered to mitigate the impact of unpredictable factors such as inclement weather conditions. In order to sustain the anticipated level of work-related returns and ensure their commensurability with the investment made, it is

advisable to explore supplementary sources of income in order to augment overall earnings.

Suggestions for next research

The examination of factors pertaining to competition and safety within the realm of freight transportation warrants scholarly investigation. The utilization of information technology, effective communication in logistics, efficient order management, and the implementation of comprehensive logistics service quality indicators are crucial elements that contribute to enhancing the service quality of emerging logistics delivery service providers and ensuring sustainable responsiveness to customer needs.

REFERENCES

- Chananchana., J. (2021). Factors Affecting Customers Satisfaction on Service of Delivery. *Journal of Academic for public and private Management*, 3(3), 159 – 166.
- Cochran, W.G. (1963). **Sampling Technique**. 2nd Edition, John Wiley and Sons Inc., New York.
- KASIKORN RESEARCH CENTER. (2023). Food Delivery platform provider accelerates business rebalancing amid A food ordering market with challenges awaits, Retrieved July 20, 2023 from <https://www.kasikornresearch.com/th/analysis/k-econ/business/Pages/FOOD-DELIVERY-CIS3423-B-19-07-2023.aspx>
- Logistics Bureau Department of Primary Industries and Mines. (2015). **Logistics Performance Assessment Guide and Supply Chain**. 1st Edition March 2015.

Nunthong, K., & Suvannin, W. (2021). Logistics Service Quality Factors Influencing Customer Loyalty to Logistics Service Businesses in Thailand. *Journal of Business Administration and Social Sciences Ramkhamhaeng University*, 4(3), 42-63.

Pajongkitkakan W., Maneekeool C., & Rachapaettayakom P. (2021). Efficient logistics management affecting customers' satisfaction: a case study of express parcel services at southeast asia university. **Journal of legal entity management and local innovation**, 7(1), 18-32.

Office of the National Economic and Social Development Council. **Logistic Development Action Plan**. Retrieved 20 July 2023, from [https://www.nesdc.go.th/download/document/logistic/Thailand%20Logistics%20Action%20Plan%202023-2027%20\(Public%20Version\).pdf](https://www.nesdc.go.th/download/document/logistic/Thailand%20Logistics%20Action%20Plan%202023-2027%20(Public%20Version).pdf)

Stock, J. R., & Lambert, D. M. (2001). **Strategic logistics management (Vol. 4)**. Boston, MA: McGraw-Hill/Irwin.